ABSTRACT

In a distributed communications environment, intelligent negotiation agents (INAs) are described. INAs are autonomous intelligent software agents that negotiate for the acquisition of products, services and bundles by adopting roles of buying, selling and brokering in which a buyer agent negotiates with at least two seller agents. In order to automate INAs, artificial intelligence technologies, including neural networks, genetic algorithms and genetic programming, are applied. AI allows automous software agents to adapt to changing markets and allows the INAs to use mobility in a distributed system. Multi-session auction approaches based on initial parameters and self-motivated adaptation are used by buyer and seller INAs. Negotiation factors include multilateral and multivariate parameters as well as price. Accountability data, marketing promotions, risk management options and made-to-order services are integrated into this system. Search agents initiate the negotiation process. Analytical agents inform INAs throughout the negotiation process. Transaction agents close and track transactions. Micro-agents are used for buyer INAs to interact simultaneously with two or more seller INAs. Dynamic mobile negotiation agents (D-INAs) operate as double agents that alternate roles between buyer and seller; such adaptive roles allow arbitrage functions.